



# Certificate of Compliance

This certificate is issued for the following:

**Polyethylene (PE) Fittings for Underground Fire Protection Service**  
(see details on following pages)

**Prepared for:**

AGRU Kunststofftechnik GmbH  
Ing Pesendorfer Str 31  
Bad Hall, A-4540  
Austria

**Manufactured at:**

AGRU Kunststofftechnik GmbH  
Ing Pesendorfer Str 31  
Bad Hall, A-4540  
Austria

FM Approvals Class: 1613

Approval Identification: 0003058544

Approval Granted: June 28, 2017  
Report Revised: July 21, 2017

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

A handwritten signature in black ink, appearing to read 'D.B. Fuller', is written over a horizontal line.

David Fuller  
VP - Manager of Fire Protection  
FM Approvals  
1151 Boston-Providence Turnpike  
Norwood, MA 02062 USA



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# Certificate of Compliance

| <i><b>Product Designation</b></i>                                                  | <i><b>O.D., Pipe Size, mm</b></i>                                                                                                                                                                                                                                                                      | <i><b>Pressure Rating Bar (psi)</b></i> | <i><b>Remarks</b></i> |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------|
| Spigot Fittings for electro socket and/or heated tool butt welding, PE 100, SDR 11 |                                                                                                                                                                                                                                                                                                        |                                         |                       |
| 90° Elbow long spigot (Multibend)                                                  | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225                                                                                                                                                                                                                                                          | 15 (218)                                | a, b, c               |
| 90° Elbow long spigot                                                              | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315                                                                                                                                                                                                                                           | 15 (218)                                | a, b, c               |
| 45° Elbow, long spigot                                                             | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315                                                                                                                                                                                                                                           | 15 (218)                                | a, b, c               |
| 90° Elbow, short spigot                                                            | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500                                                                                                                                                                                                                       | 15 (218)                                | a, b, c               |
| Equal Tee, long spigot                                                             | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400                                                                                                                                                                                                                                 | 15 (218)                                | a, b, c               |
| Reducing Tee, long spigot                                                          | 63 x 50,<br>73 x 63<br>90 x (63, 75)<br>110 x (63, 75, 90)<br>125 x (75, 90, 110)<br>160 x (63, 75, 90, 110)<br>180 x (90, 110, 160)<br>200 x (63, 90, 110, 125, 160)<br>225 x (75, 90, 110, 160, 180)<br>250 x (75, 110, 160, 180, 200)<br>315 x (90, 110, 125, 160, 180, 200, 225, 250)<br>500 x 200 | 15 (218)                                | a, b, c               |
| Equal Tee, short spigot                                                            | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500                                                                                                                                                                                                                       | 15 (218)                                | a, b, c               |
| Reducing Tee, short spigot                                                         | 125 x 63<br>140 x (63, 75, 90, 110)<br>160 x 125<br>180 x (63, 75, 125),<br>225 x 125<br>250 x (110, 160)                                                                                                                                                                                              | 15 (218)                                | a, b, c               |
| Stub Flange, long spigot (DIN Standard)                                            | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 315, 355, 400                                                                                                                                                                                                                                      | 15 (218)                                | a, b, c               |
| Stub Flange, short spigot, (DIN Standard)                                          | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                           | 15 (218)                                | a, b, c               |



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| <i><b>Product Designation</b></i>          | <i><b>O.D., Pipe Size, mm</b></i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <i><b>Pressure Rating Bar (psi)</b></i> | <i><b>Remarks</b></i> |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------|
| Stub Flange, short spigot, (ANSI Standard) | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                          | 15 (218)                                | a, b, c               |
| Stub Flange, Special Dimensions            | 110, 125, 180, 250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15 (218)                                | a, b, c, d            |
| Backing Ring - DIN                         | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                          | 15 (218)                                | a, b                  |
| Backing Ring - ANSI                        | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                          | 15 (218)                                | a, b                  |
| Blind Flange                               | 63, 90, 110, 125, 140, 160, 180, 225, 250, 315, 355, 400, 450, 500                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15 (218)                                | a, b, c               |
| Concentric Reducer, long spigot            | 90 x 63<br>110 x (63,90)<br>125 x (63, 90,110)<br>140 x 125<br>160 x (90,110,125,140)<br>180 x (125,160)<br>200 x 160<br>225 x 160<br>250 x (160,225)<br>280 x 250<br>315 x (225,250)                                                                                                                                                                                                                                                                                                                 | 15 (218)                                | a, b, c               |
| Concentric Reducer, short spigot           | 75 x 63<br>90 x (63, 75)<br>110 x (63, 75, 90)<br>125 x (63, 75, 90, 110)<br>140 x (75, 90, 110, 125)<br>160 x (90, 110, 125,140)<br>180 x (90,110,125, 140, 160, 180)<br>200 x (140, 160, 180)<br>225 x (140, 160, 180, 200)<br>250 x (160,180, 200, 225)<br>280 x (200, 225, 250)<br>315 x (200, 225, 250, 280)<br>355 x (200, 225, 250, 280, 315)<br>400 x (225, 250, 315, 355)<br>450 x (400, 355, 315)<br>500 x (280, 315, 355, 400, 450)<br>560 x (225, 500)<br>630 x (315, 400, 450, 500, 560) | 15 (218)                                | a, b, c               |



# Certificate of Compliance

| <i>Product Designation</i>                                                        | <i>O.D., Pipe Size, mm</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------|
| End Cap, long spigot                                                              | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15 (218)                         | a, b, c        |
| End Cap, short spigot                                                             | 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 15 (218)                         | a, b, c        |
| Spigot Fittings for electro socket and/or heated tool butt welding, PE 100, SDR 9 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                  |                |
| 90° Elbow Long Spigot Segmented                                                   | 140, 250, 280, 315, 355, 400, 450, 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 17.5 (250)                       | a, b           |
| 90° Elbow Long Spigot, molded, SDR7.4 with ends machined to SDR9                  | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 17.5 (250)                       | a, b, c        |
| 45° Elbow, long spigot Segmented                                                  | 140, 250, 280, 315, 355, 400, 450, 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 17.5 (250)                       | a, b, c        |
| Equal Tee, long spigot, Socket Weld, SDR7.4 with ends machined to SDR9            | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 17.5 (250)                       | a, b, c        |
| Equal Tee, long spigot, Butt Fusion, SDR7.4 with ends machined to SDR9            | 250, 280, 315, 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 17.5 (250)                       | a, b, c        |
| Reducing Tee, short spigot, machined- welded                                      | 90 x (63, 75)<br>110 x (63, 75, 90)<br>125 x (63, 75, 90)<br>140 x (75, 90, 110, 125)<br>160 x (63, 75, 90, 110, 125)<br>180 x (63, 75, 90, 110, 125)<br>200 x (63, 75, 90, 110, 125, 140, 160)<br>225 x (63, 75, 90, 110, 125, 140)<br>250 x (63, 75, 90, 110, 125, 140, 160, 180)<br>280 x (63, 75, 90, 110, 125, 140, 160, 180, 200)<br>315 x (63, 75, 90, 110, 125, 140, 160, 180, 200, 225)<br>355 x (63, 75, 90, 110, 140, 160, 180, 200, 225, 250)<br>400 x (63, 75, 90, 110, 160, 180, 200, 225, 250, 280, 315)<br>450 x (63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280)<br>500 x (63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280)<br>560 x (140, 160, 180, 225, 250, 315)<br>630 x (140, 160, 180, 225, 250, 315) | 17.5 (250)                       | a, b, c        |





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| <i>Product Designation</i>                                        | <i>O.D., Pipe Size, mm</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------|
| Stub Flange, long spigot – DIN, SDR7.4 with ends machined to SDR9 | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17.5 (250)                       | a, b, c        |
| Stub Flange, short spigot, (DIN Standard)                         | 140, 180, 250, 280, 315, 355, 400, 450, 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 17.5 (250)                       | a, b, c        |
| Stub Flange, short spigot - ANSI                                  | 63, 75, 90, 110, 160, 180, 200, 225, 250, 315, 355, 400, 450, 500                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 17.5 (250)                       | a, b, c, d     |
| Backing Ring – DIN, PP-FRP Encased                                | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                                | 17.5 (250)                       | a, b, c        |
| Backing Ring – ANSI, PP-FRP Encased                               | 63, 75, 90, 110/125, 160, 200/225, 250/280, 315                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 17.5 (250)                       | a, b, c        |
| Backing Ring – ANSI, Galvanized Steel                             | 355, 400, 450, 500, 560, 630                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 17.5 (250)                       | a, b, c        |
| Blind Flange, DIN PP-FRP Encased                                  | 63, 90, 110/125, 140, 160/180, 200/225, 250/280, 315, 355, 400                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 17.5 (250)                       | a, b, c        |
| Blind Flange, DIN, Galvanized Steel                               | 450/500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 17.5 (250)                       | a, b, c        |
| Blind Flange, ANSI, PP-FRP Encased                                | 63, 75, 90, 110/125, 160, 200/225, 250, 315                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 17.5 (250)                       | a, b, c        |
| Blind Flange, ANSI, Galvanized Steel                              | 355, 400, 450, 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 17.5 (250)                       | a, b, c        |
| Concentric Reducer, short spigot                                  | 75 x (63)<br>90 x (63, 75)<br>110 x (50, 63, 75, 90)<br>125 x (63, 75, 90, 110)<br>140 x (75, 90, 110, 125)<br>160 x (90, 110, 125, 140)<br>180 x (90, 110, 125, 140, 160)<br>200 x (140, 160, 180)<br>225 x (140, 160, 180, 200)<br>250 x (160, 180, 200, 225)<br>280 x (160, 180, 200, 225, 250)<br>315 x (160, 180, 200, 225, 250, 280)<br>355 x (180, 200, 225, 250, 280, 315)<br>400 x (180, 225, 250, 315, 355)<br>450 x (225, 250, 280, 315, 355, 400)<br>500 x (315, 355, 400, 450)<br>560 x (315, 355, 400, 450) | 17.5 (250)                       | a, b, c        |





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| <i>Product Designation</i>                                                      | <i>O.D., Pipe Size, mm</i>                                                                             | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------|----------------|
|                                                                                 | 630 x (355, 400, 450, 500, 560)                                                                        |                                  |                |
| Concentric Reducer, Long Spigot, Butt Fusion, SDR7.4 with ends machined to SDR9 | 110 x (63, 90)<br>125 x (63, 90, 110)<br>160 x (90, 125)<br>200 x 160<br>225 x 160<br>250 x (160, 225) | 17.5<br>(250)                    | a, b, c        |
| End Cap, short spigot                                                           | 250, 280, 315, 355, 400, 450, 500                                                                      | 17.5<br>(250)                    | a, b, c        |
| End Cap, long spigot, SDR7.4 with ends machined to SDR9                         | 63, 75, 90, 110, 125, 160, 200, 225                                                                    | 17.5<br>(250)                    | a, b, c        |

## Remarks:

- Dimensions refer to the pipe outside diameter. Pipe and fittings are directly connected by the butt fusion process.
- The manufacturer's fusion welding instructions must be strictly adhered to for a proper joint. The fittings may also be joined to other FM Approved flanged fittings with the above flange adapters.
- The fittings are manufactured of injection molded PE100.
- The fittings are Approved when used with an EPDM Gasket supplied by AGRU Kunststofftechnik.

| <i>Product Designation</i>                   | <i>O.D., Pipe Size, mm</i>                                                                                       | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------|
|                                              |                                                                                                                  |                                  |                |
| Fittings, Electro-socket, PE 100             |                                                                                                                  |                                  |                |
| 90° Elbow                                    | 63, 75, 90, 110,<br>125, 160, 180, 225                                                                           | 15<br>(218)                      | a, b, c        |
| 45° Elbow                                    | 63, 75, 90, 110,<br>125, 160, 180, 225                                                                           | 15<br>(218)                      | a, b, c        |
| Equal Tee                                    | 63, 75, 90, 110,<br>125, 160, 180, 225                                                                           | 15<br>(218)                      | a, b, c        |
| Spigot Saddle, bottom part screwable, molded | 90 x 63<br>110 x 63<br>125 x 63<br>140 x 63<br>160 x (63, 90, 110)<br>180 x (63, 90, 110)<br>225 x (63, 90, 110) | 15<br>(218)                      | a, b, c        |



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| <i>Product Designation</i>    | <i>O.D., Pipe Size, mm</i>                                                                                                                   | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------|
|                               |                                                                                                                                              |                                  |                |
|                               | 250 x (63, 75, 90, 110)<br>280 x (63, 90, 110)<br>315 x (63, 90, 110)<br>355 x (63, 90, 110)                                                 |                                  |                |
| Spigot Saddle System, Topload | 355 x (90, 110, 125)<br>400 x (90, 110, 125)<br>450 x (90, 110, 125)<br>500 x (90, 110, 125)<br>560 x (90, 110, 125)<br>630 x (90, 110, 125) | 15<br>(218)                      | a, b, c        |
| Concentric Reducer            | 75 x 63<br>90 x 63<br>110 x (63, 90)<br>125 x 90<br>160 x (90, 110)<br>180 x 125<br>225 x 160                                                | 15<br>(218)                      | a, b, c        |
| Equal Coupling                | 63, 75, 90, 110, 125, 140, 160, 180, 200,<br>225, 250, 280, 315, 355, 400, 450, 500, 560, 630                                                | 15<br>(218)                      | a, b, c        |
| End Cap                       | 63, 75, 90, 110, 125, 140, 160, 180,<br>200, 225, 250, 280, 315                                                                              | 15<br>(218)                      | a, b, c        |
| 90° Elbow                     | 63, 75, 90, 110, 125, 160, 180, 200, 225                                                                                                     | 17.5<br>(250)                    | a, b, c        |
| 45° Elbow                     | 63, 75, 90, 110, 125, 160, 180, 200, 225                                                                                                     | 17.5<br>(250)                    | a, b, c        |
| Equal Tee                     | 63, 90, 110, 125, 140, 160, 180, 200, 225                                                                                                    | 17.5<br>(250)                    | a, b, c        |
| Spigot Saddle System, Topload | 355 x (90, 110, 125)<br>400 x (90, 110, 125)<br>450 x (90, 110, 125)<br>500 x (90, 110, 125)<br>560 x (90, 110, 125)<br>630 x (90, 110, 125) | 17.5<br>(250)                    | a, b, c        |
| Concentric Reducer            | 75 x 63<br>90 x 63<br>110 x (63, 90)<br>125 x (90, 110)                                                                                      | 17.5<br>(250)                    | a, b, c        |





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| <i>Product Designation</i> | <i>O.D., Pipe Size, mm</i>                                                       | <i>Pressure Rating Bar (psi)</i> | <i>Remarks</i> |
|----------------------------|----------------------------------------------------------------------------------|----------------------------------|----------------|
|                            |                                                                                  |                                  |                |
|                            | 160 x (90, 110)<br>180 x 125<br>225 x 160                                        |                                  |                |
| Equal Coupling             | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450, 500 | 17.5 (250)                       | a, b, c        |
| Equal Coupling             | 2, 3, 4, 5, 8, 10, 12 inch                                                       | 17.5 (250)                       | a, b, c        |
| End Cap                    | 63, 75, 90, 110, 125, 140, 160, 180, 200, 225, 250, 280, 315                     | 17.5 (250)                       | a, b, c        |

**Remarks:**

- a. Dimensions refer to the pipe outside diameter. The pipe fits into a socket in the fitting, and when electrical current is applied to the terminal, which is integral with the fitting, the joint is completed.
- b. The manufacturer's electro-fusion welding instructions must be strictly adhered to for a proper joint.
- c. The fittings are manufactured of injection molded PE100.



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